

CLAIMS

1. A hinge assembly (15) for pivotally connecting a closure member (14) to a support structure (12), the hinge assembly comprising a first hinge member (21, 121, 221) for fastening to one of the closure member and the support structure, a second hinge member ((22, 122, 222) for fastening to a flange (23) on the other of the support structure and the closure member, pivot means (27, 127, 227) pivotally connecting the first hinge member to the second hinge member and an adjustment device (24) carried by the second hinge member to connect the second hinge member to the flange in a manner which allows adjustment of the position of the second hinge member with respect to the flange, the adjustment device comprising an adjustment nut (25, 125, 225) having a first clamp face (28, 128, 228) which in use faces one side of the flange and a locking screw (26) having a head (31) defining a second clamp face (32) which in use faces the other side of the flange and a shank (35) which in use extends through an aperture (34) in the flange, characterised in that the second hinge member (22, 122, 222) has a cylindrical shank portion (35, 135, 235) with a concentric bore (37) and having internal and external screw threads (38 and 36; 138 and 136; 238 and 236), that the adjustment nut (25, 125, 225) has a screw thread (39, 139, 239) engaged with the external screw thread (36, 136, 236) of the cylindrical shank portion and that the locking screw (26) has a screw thread (41) engaged with the internal screw thread (38, 138, 238) of the cylindrical shank portion.
2. A hinge assembly as claimed in claim 1 wherein the adjustment device (24) includes a spigot (42, 142, 242) which in use engages the aperture (34) in the flange (23) with a substantial clearance.
3. A hinge assembly as claimed in claim 2 wherein the spigot (42, 142, 242) is on the adjustment nut (25, 125, 225).

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4. A hinge assembly as claimed in any preceding claim wherein a sealing gasket (29; 129, 229) is interposed between the adjustment nut (25, 125, 225) and said one side of the flange (23).
5. A hinge assembly as claimed in any preceding claim wherein a washer (59) is interposed between the head (31) of the locking screw (26) and said other side of the flange (23).
6. A hinge assembly as claimed in any preceding claim wherein the external screw thread (36, 136, 236) of the cylindrical shank portion (35, 135, 235) and the screw thread (39, 139, 239) of the adjustment nut (25, 125, 225) are of the opposite hand to the internal screw thread (38, 138, 238) of the cylindrical shank portion and the screw thread (41) of the locking screw (26).
7. A hinge assembly as claimed in claim 6 wherein the external screw thread (36, 136, 236) of the cylindrical shank portion (35, 135, 235) and the screw thread (39, 139, 239) of the adjustment nut (25, 125, 225) are left-hand and the internal screw thread (38, 138, 238) of the cylindrical shank portion and the screw thread (41) of the locking screw (26) are right-hand.
8. A hinge assembly as claimed in any preceding claim and further comprising friction means (46) on one of the locking screw (26) and the adjustment nut (25) for providing a driving torque between the locking screw and the adjustment nut.
9. A hinge assembly as claimed in any preceding claim wherein the adjustment nut (25, 125, 225) is provided with a drive means (40, 161, 261) used to facilitate rotation of the adjustment nut during adjustment of the hinge assembly.
10. A hinge assembly as claimed in claim 9 wherein the adjustment nut (125, 225) has a bore in which is formed the drive means (161, 261).

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11. A hinge assembly as claimed in claim 10 wherein the drive means is a hexagonal shaped portion (161, 261) of the bore of the adjustment nut (125, 225).
12. A motor vehicle (11) having a body structure (12) and a closure member (14), the closure member being connected to the body structure by a hinge assembly (15) as claimed in any preceding claim.
13. A motor vehicle as claimed in claim 12 wherein the flange (23) comprises two spaced apart flange members (55, 56) defining a cavity (57) therebetween, the adjustment nut (25, 125, 225) being positioned so as to react against one (56) of the flange members and the locking screw (26) being arranged so as to react against the other (57) of the flange members.
14. A motor vehicle as claimed in claim 13 wherein a tubular spacer (58) is positioned in the cavity (57) between the flange members (55, 56) to react a clamping force applied to the flange members by the locking screw (26) and the adjustment nut (25).
15. A method of attaching a closure member (14) to a body structure (12) of a motor vehicle (11) as claimed in any of claims 12 to 14, the method comprising the steps of supplying the first hinge member (21, 121, 221), the second hinge member (22, 122, 222) and the adjustment nut (25, 125, 225) with the first hinge member and the second hinge member pivotally connected by the pivot means (27, 127, 227) and the adjustment nut threaded onto the cylindrical shank portion (35, 135, 235), aligning the cylindrical shank portion with the aperture (34) in the flange (23) to conform to the required position of the closure member relative to the body structure, rotating the adjustment nut on the cylindrical shank portion to conform to said required position and inserting the locking screw (26) through the aperture in the flange to engage the adjustment nut and rotating the locking screw to clamp the hinge assembly (15) to the flange.

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16. A method according to claim 15 wherein the closure member (14) is positioned and held in said required position prior to rotating the adjustment nut (25, 125, 225) on the cylindrical shank portion (35, 135, 235) to conform to said required position, the adjustment nut then being rotated to bring the first clamp face (28, 128, 228) into supporting contact with the flange (23).
17. A method as claimed in claim 16 wherein the closure member (14) is held in the required position by an assembly fixture to which it is releasably attached.
18. A method as claimed in any of claims 15 to 17 wherein the adjustment nut (25, 125, 225) is rotated until a pre-determined tightening torque is reached.
19. A method as claimed in claim 18 when the hinge assembly is according to claim 8 when dependent upon claim 6 and in which the adjustment nut (25) is rotated by said friction means (46) during the rotation of the locking screw (26).
20. A hinge assembly substantially as described herein with reference to the accompanying drawings.
21. A motor vehicle substantially as described herein with reference to the accompanying drawings.
22. A method of attaching a closure member to a body structure of a motor vehicle substantially as described herein with reference to the accompanying drawings.